

**IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION**

**SOIL CONSERVATION TECHNICIAN
HANDBOOK**



Updated: December 2011

FORE WORD

In 2010, the Division of Soil Conservation Quality Steering Team received a recommendation from Project Coordinators that a handbook should be developed. The document created was considered so useful that Secretary Handbooks and Soil Conservation Technician Handbooks were also recommended. The Quality Steering Team recommended that Quality Improvement Process teams be formed to produce the documents. The goal of the teams was to develop handbooks that would provide guidance on how to do their jobs successfully. The first edition of the Soil Conservation Technician Handbook was completed in December 2011. For more information about the handbook, please contact:

Division of Soil Conservation

Iowa Department of Agriculture and Land Stewardship

Wallace State Office Building, 502 E. 9th Street, Des Moines, IA 50319

515-281-5851

soilConservation@iowaAgriculture.gov

www.iowaagriculture.gov/soilconservation.asp



TABLE OF CONTENTS

Fore Word	2
1. INTRODUCTION	6
2. INDIVIDUAL EMPLOYEE ABILITIES, GOALS & EXPECTATIONS	7
2.1 Define Employee Expectations	7
2.2 Determine Knowledge, Skills & Abilities	7
2.3 Develop Individual Development Plan (IDP)	7
2.4 Available Training Sources	8
3. EMPLOYEE ROLES & RESPONSIBILITIES.....	9
3.1 Working with Other Field Office Staff	9
3.2 Iowa Department of Agriculture and Land Stewardship.....	11
3.3 Working with the Public.....	12
3.4 Working with the Media	13
3.5 Equal Opportunity and Civil Rights.....	14
3.6 Personal Identification Information (PII)	14
3.7 Information Technology Security and Rules of Behavior	14
3.8 Personal Safety	15
3.9 Hours of Work.....	15
3.10 Vehicles.....	16
4. PROJECT ADMINISTRATION & DOCUMENTATION	17
4.1 Engineering Schedule	17
4.2 Setting Priorities	17
4.3 CPA-15: Conservation Assistance Notes	17
4.4 CPA-52: Environmental Evaluation Worksheet.....	18
4.5 Tract Files.....	18
4.6 Engineering files.....	18
4.7 Archived Engineering Files	19
4.8 Contractor meetings	19
4.9 Peg Tests.....	19
4.10 Contractor Checkouts & 5% Spot Checks.....	20
4.11 Permits	20

4.12	Iowa One Call	20
4.13	Job Class Approval	21
4.14	Funding Source Reports	21
4.15	Environmental Benefit Worksheet	21
4.16	Survey Note Keeping	22
5.	DESIGN RESOURCES.....	23
5.1	Engineering Field Handbook (EFH)	23
5.2	Iowa Field Office Tech Guide	23
5.3	Soil Survey	23
5.4	Iowa Drainage Guide.....	24
5.5	Thunder books	24
5.6	Iowa Engineering Index.....	24
5.7	Urban Storm Water Management Manual.....	24
5.8	DNR Forestry Tech Guide	25
5.9	ADBNNet (305(b) Water Quality Assessment Database).....	25
5.10	Stream Corridor and Shoreline Assessments.....	26
5.11	Mobile Mapper, Magellan, & ArcPad	26
5.12	Garmin GPS Unit	26
5.13	ArcMap & Toolkit.....	26
6.	CONSERVATION PRACTICES.....	28
6.1	Grass Waterways (412)	28
6.2	Terraces (600)	29
6.3	Water and sediment control basins (638)	29
6.4	Grade stabilization structures (410)	29
6.5	Contouring (332)	30
6.6	Wetlands (657, 658, 659)	30
6.7	Heavy Use Areas (561)	31
6.8	Animal Watering Facilities (614)	31
6.9	Animal Waste Storage Structures (313).....	31
6.10	Shelterbelt & Windbreaks (380).....	32
6.11	Urban Conservation Practices	32

7. PUBLIC OUTREACH (PO).....	33
7.1 Outline Public Outreach Goals	33
7.2 Identify Your Audience(s).....	33
7.3 Identify Your Customers’ Needs and Attitudes.....	33
7.4 Select and Initiate Public Outreach Techniques.....	34
7.5 Measure & Evaluate Effectiveness of Outreach Campaign	34
8. COST SHARE FUNDING SOURCES	35
8.1 Division of Soil Conservation	35
8.2 Iowa Department of Natural Resources	36
8.3 Watershed Improvement Review Board	37
8.4 Mississippi River Basin Initiative	37
8.5 United States Department of Agriculture	37
9. TECHNICAL REFERENCES, LAWS & REGULATIONS	40
9.1 Soil Loss Complaints.....	40
9.2 NRCS Compliance Status Reviews	40
9.3 1972 Clean Water Act.....	41
9.4 Iowa DNR Environmental Services Division Field Offices	42
9.5 Tort Liability	42
9.6 Army Corps of Engineers Permits	42
Appendix 1. Engineering Schedule Example	43
Appendix 2. Points of Contact Links.....	<i>Error! Bookmark not defined.</i>
Appendix 3. Technical Resources Links	<i>Error! Bookmark not defined.</i>
Appendix 4. NRCS Survey Codes	44
Appendix 5. Common Acronyms.....	<i>Error! Bookmark not defined.</i>

1. INTRODUCTION

While it is true that most Soil Conservation Technicians, or SCTs, find their jobs to be a rewarding experience, it is equally true that most SCTs find their first 2 years on the job to be very stressful. Often, new SCTs find few people to turn to for advice and support within their local field office since the job is so unique compared to the other staff. But in reality, all conservation efforts are a collaborative effort, as is the administration of each project itself, so no SCT is ever really alone. **You are the local point person *of a much larger team*.**

In time, every SCT develops a support network of friends and peers. But this takes time. SCTs and Division of Soil Conservation (DSC) management recognized this problem and formed a Quality Improvement Process (QIP) Team to develop this handbook. While it is hoped that all SCTs may appreciate the usefulness of the handbook, the primary purpose of this effort was to develop a quick reference produced by those with years of experience. DSC and your peers hope that you will become acclimated into your new job quicker and with less stress, making you more proficient, and your job experience more rewarding. Assistance beyond this guidance document is always available to you from your peers, DSC, the SWCD, and NRCS.

2. INDIVIDUAL EMPLOYEE ABILITIES, GOALS & EXPECTATIONS

2.1 DEFINE EMPLOYEE EXPECTATIONS

As a State of Iowa employee, all your job information such as employee benefits and classification can be found online at the Iowa Department of Administrative Services website: <http://das.hre.iowa.gov/>. This information and much more can be found here and in the State Employee Handbook you received. These are the general employee expectations that cover the State of Iowa- whether you are a Secretary, Soil Conservation Technician (SCT), Veterinarian, etc. Each job position has individual job expectations and in each NRCS field office, each SCT has employee expectations that need to be met. Those expectations will be tailored to you and the county you work in and need to be spelled out as soon as possible.

People become a SCT for different reasons. Some look upon the position as a career choice, while others as a stepping-stone toward other natural resources positions. Because of this diversity, it's important that you, your Supervisor, your Employer, and the NRCS District Conservationist (DC) in your County have a basic understanding of what your intent is in seeking this position. While it is inappropriate to discriminate against you for your future career goals, properly identifying your goals can have a profound impact upon the "agreed to" training opportunities and experiences built into your Individual Development Plan.

2.2 DETERMINE KNOWLEDGE, SKILLS & ABILITIES

As you are about to learn, your local partners have certain expectations regarding your ability to achieve the stated goals and objectives associated with your job. To achieve these goals, you will have to exhibit certain knowledge, skills, and abilities, or KSA's, many of which you may already possess; others you will gain through additional training, mentoring, or job shadowing. During your first week, the NRCS District Conservationist (DC) and your IDALS Field Representative (your Supervisor) will sit down with you to fill out your KSAs and develop an Individual Development Plan or IDP.

2.3 DEVELOP INDIVIDUAL DEVELOPMENT PLAN (IDP)

After determining your current KSA levels, we need to compare that list to the suggested KSA levels as identified by your partners and the supporting agencies for your county. The KSA's will assist you in forming an Individual Development Plan or IDP (a draft IDP form is included in Appendix 1). Included in the IDP should be a comprehensive list of the training needs identified through a collaborative effort between you and your Supervisor, your DC, and the NRCS Area

Engineer (AE). Your Iowa Engineering Job Approval Authority (IA-ENG-7) should be filled out by the AE at this time. The IA-ENG-7 will be discussed further in Chapter 4 Section 12.

2.4 AVAILABLE TRAINING SOURCES

SCTs often have access to multiple sources of training, including Iowa Department of Agriculture and Land Stewardship (IDALS)/Division of Soil Conservation (DSC), Iowa Department of Natural Resources (DNR) and Natural Resources Conservation Service (NRCS). As your level of experience increases, so will your network of contacts within these various agencies and organizations, opening even more opportunities for training.

Often more than one source of training is available, and since training opportunities may come and go due to fluctuating budgets, more than one source may be necessary. In addition, multiple sources of training may be necessary to raise your abilities to the level necessary to complete a higher job class approval project. Sources of training include, but are not limited to, the NRCS Area Engineers, the other SCT in your MU, SCTs in surrounding counties, and even SCTs in your NRCS Area. You should make a list of sources of training with your IDP group and the order in which to contact them. As workloads fluctuate in each county, SCTs and AEs available to train you will also fluctuate. Your DC should always be your first point of contact for training.

MENTORS –Those wanting a mentor should let their Supervisor, DC, and AE know. After working with you to determine the skill sets you’re seeking, various candidates will be evaluated, and one or more selected and assigned to you.

SHADOWING - At times, the skills you seek may best be found by having you tag along with those more experienced and observe them as they go about their various job duties. Such an experience often decreases the amount of anxiety you may experience, which only increases confidence and the likelihood of your success. If you at any time would like to shadow, contact your Supervisor, DC, and AE. Various candidates within a short distance from your office will be evaluated and contacted. Shadowing days will work around both offices projects to maximize your learning experience.

3. EMPLOYEE ROLES & RESPONSIBILITIES

3.1 WORKING WITH OTHER FIELD OFFICE STAFF

Within your office, you will be stationed with Soil and Water Conservation District (SWCD), NRCS, IDALS, and in some cases, DNR staff. Job duties, as listed below, are generalizations of the positions being described. As each SWCD is independently operated, day-to-day activities and administrative operations will naturally vary from site to site. In defining the roles of yourself and your coworkers, it is important to work with your District Conservationist and your SWCD Commissioners to learn the inner workings of your office.

DISTRICT CONSERVATIONIST (NRCS): Plans and directs NRCS field office operations to assure conservation activities and programs are maintained and implemented. The District Conservationist (commonly referred to as the “DC”) provides assistance to the Soil & Water Conservation District Commissioners in implementing the District's long-range plans, provides information, advice and guidance to land users and local units of government as well as leadership in the development, analysis, and use of land and water resource data.

RESOURCE CONSERVATIONIST (RC): Coordinates all conservation planning within a MU. Typically the RC also handles all wetland and HEL/Non-HEL determinations, and contacts Area Specialists for the MU. The RC assists with program management, annual work plan and long range SWCD work plans. One RC is found in the County within the MU that the DC is not stationed in. The Resource Conservationist is shared between both Counties in the Management Unit.

SOIL CONSERVATIONIST (SC): SCs handle the conservation planning, determinations, and other duties assigned by the DC. The SC is found in the County of the MU in which the DC is stationed. The Soil Conservationist is not a shared position between the Counties in the MU. Conservation planning, determinations, and other duties that are assigned are overseen by the RC of the Management Unit.

SOIL CONSERVATION TECHNICIAN (NRCS or IDALS): SCTs have the lead in surveying, designing, and implementing a variety of conservation practices throughout a given District or Management Unit. They oversee practice construction to ensure that agreed-to design specifications, as specified by the NRCS Field Office Technical Guide, are being met by the contractor. SCTs work with the DC, RC, and SC to ensure a correct and practical conservation plan is created for a producer. To do this, NRCS Conservation Planning procedure requires the DC, RC, or SC and the SCT to review the site together with the producer.

SECRETARY (IDALS): Secretaries are responsible for supporting many of your District’s critical activities, including keeping financial ledgers, developing cost share applications, and taking

minutes at District Commissioner's meetings. Most importantly, they often serve as the first point of contact for telephone calls and those coming into the field office.

OTHER EMPLOYEES: Some offices also have NRCS Area Office personnel and/or other agency personnel stationed in their office. These coworkers may also be available to provide assistance. These may include, but are not limited to:

- **SOIL SCIENTISTS** (NRCS) may assist in assessment of on-site soils and general soil conditions, especially when constructing larger structures such as ponds and wetlands.
- **CIVIL ENGINEERS AND CIVIL ENGINEERING TECHNICIANS** (NRCS) can develop designs for practices beyond the scope of local SCTs. Civil Engineers and CETs also assist in recommending practices and developing pre-implementation cost estimates. Civil Engineers and CETs work under the guidance of the Area Engineer (AE).
- **PRIVATE LANDS BIOLOGISTS** provide biological training and technical support to NRCS, SWCD, IDALS-DSC, and DNR Private Lands field staff. This biological assistance incorporates fish, forest, wildlife, and water quality considerations into agricultural programs for maximum wildlife and water quality benefits. They may also assist in writing burn plans, conducting wetland feasibility and designs for restoration; and providing outreach to link landowners with conservation programs.

SOIL & WATER CONSERVATION DISTRICT COMMISSIONERS (SWCD): The Soil & Water Conservation District is a group of five individuals that live within the County. They are elected every 4 years, 2 one year and 3 two years later. As an elected part of the local government, the Commissioners duties are to lead the conservation within their County. They set the priorities for conservation practices within their County based on IDALS State Cost Share guidelines. SWCD Commissioners approve conservation plans, CRP enrollments, and IDALS-DSC programs. With no taxing authority, the SWCD raises money through programs such as plant sales, sponsorships, grants, rentals of SWCD-owned equipment, and as they are able. It is highly recommended to attend the SWCD Commissioner meetings when able to. If their meetings are outside of your normal work hours, obtain your Supervisor's permission before attending.

LEVELS OF AUTHORITY: NRCS offices have line officers. The State Conservationist is responsible for everything done by NRCS within the State. The Assistant State Conservationist for Field Operations, ASC-FO, the formerly titled Area Conservationist, answers to the State Conservationist. There are 5 of them in the State of Iowa, 1 in each NRCS Area. They are responsible for everything that happens in their Area. Below the ASC-FO is each District Conservationist. DCs are responsible for their office or Management Unit.

SUPPORTING STAFF: All the other staff found within the NRCS offices are considered supporting staff. They have no hiring, firing, disciplining, or other management authorities. The only time a supporting staff member may have these authorities is when they are "acting". "Acting" temporarily gives an NRCS supporting staff member the authority to act in a management position while that position is vacated or unavailable due to such things as retirement, illness,

military duty, vacation, etc. IDALS and SWCD employees are never assigned as “acting” for an NRCS employee.

WORKING RELATIONSHIPS: Due to the varying employers within your office, it can lead to much confusion. NRCS DCs are not Supervisors for IDALS (you) or SWCD employees. However, as the DC is responsible for everything that occurs in your office, it is professional courtesy to respect the DC’s responsibility and assist in helping the office run smoothly. Below is a chart of professional attitudes and behaviors that will help you become a positive influence and welcome addition to your office. The chart is modified from a chart submitted by participants in a 2000 AACP Teachers’ Seminar on Developing Professional Attitudes and Behaviors.

Attitude	Behavior
Accountability	Take responsibility for your actions
Team Player	Assist when needed, do your job to the best of your ability
Desire for self-improvement	Continued learning, utilizing IDP and IA-ENG-7
Diversity	Fair treatment of all people
Honesty	Be honest and trustworthy
Open-minded	Increased receptiveness to new ideas, listen
Respect	Dresses appropriately, Punctual, treat co-workers as you want to be treated
Values new experiences	Desire to seek out and take on new challenges, accept critique and improve
Communication	Inform others of your plans, work together to set schedules to staff the office

3.2 IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

The agency you work for is the Iowa Department of Agriculture and Land Stewardship- Division of Soil Conservation, or IDALS-DSC. As a Soil Conservation Technician, you are under the Field Services Bureau. Your pay scale, job descriptions, health benefits, etc can all be found online at IDALS website.

IDALS FIELD REPRESENTATIVES –The Field Representative in your IDALS Area is your Supervisor. The Field Rep. plays a key administrative role linking your SWCD to IDALS in Des Moines. He/She will help develop your Individual Development Plan (IDP) and assist you in getting training. As your Supervisor, the Field Rep can answer questions regarding IDALS programs, as well as giving you permission to take vacation time, training, and such. Your Supervisor will work with your DC to do your employee evaluations and update your IDP and training plans each year.

BASIN COORDINATORS (BCs) – The BCs basically have two functions. First, during the development of watershed projects, the BCs assist local applicants with gathering data, conducting assessments and developing locally-led watershed efforts. The second function is to act as a link between the project and the sponsoring state agencies, and facilitate opportunities to secure additional resources, increase local capacity and overcome barriers.

OTHER EMPLOYEES - Other employees under each of these agencies may also be available to provide assistance in the absence of an IDALS Secretary. These may include, but are not limited to:

- **ENVIRONMENTAL SPECIALIST SENIOR** – This position maintains the various contracts between IDALS and SWCD projects, as well as the Financial and Reports Management System (FARMS).
- **URBAN CONSERVATIONIST** – IDALS maintains a limited number of urban conservationists across the state. They are currently managed through the lead Urban Conservationist within the Field Services Bureau of IDALS at Des Moines. Their purpose is to provide advice to citizens, local leaders, and communities on how best to address storm water runoff and water quality issues within the state’s urban areas. They are an excellent source of training on urban conservation.
- **WIRB COORDINATOR** – The Watershed Improvement Review Board is coordinated through IDALS with the assistance of the WIRB Coordinator, located in Des Moines (additional information on the WIRB program can be found in Section 9.3).
- **PROGRAM PLANNER** – The Program Planner position is located in Des Moines. The position deals with the Low Interest Loan Program, No Interest Loan Program, and various other programs as assigned.
- **ADMINISTRATIVE ASSISTANT** – The Administrative Assistant receives your time sheets every other Wednesday and makes sure your Supervisor signs off on it. The AA handles most questions or directs you to the person with the answer. If unable to contact your Supervisor, the AA is able to assist you.

3.3 WORKING WITH THE PUBLIC

As an SCT, working with the public is a requirement. Working *well* with the public is extremely important. The contracting, design, and installation of conservation practices depends on you and your relationship with your co-workers, producers, and contractors. Your attitude will either encourage their participation or alienate them, and while it’s easy to change a producer’s opinion from positive to negative, it’s many times more difficult to change them from negative to positive. Remember, you will only succeed if the producers *voluntarily* accept changing their way of life. **They have to trust you - your knowledge, skills, and abilities.** Most producers have farmed the same way for most of their lives, and possibly their fathers and grandfathers lives. Change does not come easy for most.

SCHEDULING – Your work schedule has been set by you and your Field Representative with respect to the office you will be working in. You are required to work that schedule, however, as job duties may require to you work outside of this schedule, you will need to keep your Field Representative and District Conservationist informed. While you are asking your Field Representative for permission because they are your Supervisor, you are not asking your DC for permission- you are keeping the DC informed. Holidays, vacations, etc. should also follow this procedure. Since NRCS, IDALS, and the SWCD would like to see the office open during business hours, it is up to all of us to make sure it is. If any conflicts arise regarding this, please contact your Field Representative immediately.

AGRICULTURAL PRODUCERS – Can be very difficult to contact during spring and fall, the times corresponding to planting and harvest, respectively. Try contacting these individuals during the mid-summer months, June, July and August, or during winter months such as January, February, and March. If a field visit is necessary, it is best to do so before the crops grow to the point that they are impeding visibility or during the winter after freeze up.

URBAN LANDOWNERS –While there is less seasonality in their schedule, they are often busy during the normal office hours of a Soil and Water Conservation District, though this may depend on their shift. Should a meeting with urban landowners be desired, evening and weekends often work best. Any meetings set up outside of your normal hours need to be approved by your Supervisor and the DC first.

COMMERCIAL OR INDUSTRIAL STAKEHOLDERS - Typically maintain hours similar to those of the Soil and Water Conservation District. For this reason, it is often relatively simple to get in touch with people in this group. Be advised, however, that if you require action from these individuals, whether that be encouraging them to attend a conference or meeting, or attempting to implement practices on their land, it is important to begin the communication early as many of these actions must be approved by committees or boards.

3.4 WORKING WITH THE MEDIA

While it is true the most effective approach to convince producers of the need for change is still individual, face-to-face meetings, there will be time when the DC and SWCD wish to engage larger audiences, or even the general public. At these times, the most effective approach may involve the use of mass media using such means as radio, television, newspapers, or trade magazines. Examples of such publications include the Farm Bureau Spokesman, or Wallace's Farmer. Another approach is to partner with special interest groups, such as sportsmen clubs, to see if you can insert your message into their outreach efforts, including newsletters and websites.

Some may find working with the media confusing, but with additional training and support, few find it difficult. The key may be to properly define who your target audience is, then build a

focused public outreach campaign around it (more on public outreach can be found in Section 8). DSC maintains public outreach specialists to assist SCTs in developing public outreach campaigns. Outreach may or may not be necessary depending on the state of the SWCD office and its relationship with producers. Outreach efforts should be spelled out in the SWCD's annual work plan. Consult this document to see what is expected of you each year.

3.5 EQUAL OPPORTUNITY AND CIVIL RIGHTS

The SWCDs and the partnering federal & state agencies are committed to equal employment opportunity (EEO) and to the benefits that come from a diverse workforce, and strive to be consistent with all federal, state, and municipal EEO laws. The hiring process complies with the Civil Rights Clause of the Cooperative Working Agreement. Appointments, promotions, assignments, training and performance evaluations are to be based on individual qualifications and merit, and shall be equally available to all qualified applicants and employees.

Each employee is responsible for helping to maintain a climate that provides equal opportunity for all. Alleged actions of discriminatory harassment by anyone should be reported to the District Conservationist. If the alleged problem involves the District Conservationist, it should be reported to your IDALS Field Representative. Alleged discrimination may also be reported to the Iowa Civil Rights Commission and the Federal Equal Opportunity Employment Commission.

3.6 PERSONAL IDENTIFICATION INFORMATION (PII)

Homeland Security has instructed United States Department of Agriculture (USDA) and all the partners accessing federal information through the USDA (programs, computer, etc.) to protect PII on behalf of their clients. The Office of Management & Budget defines PII data as "any combination of information about an individual maintained by the agency, including but not limited to name, social security numbers, date of birth, maiden name, biometric record number, home address, education, financial transactions, medical history, criminal or employment history..." In other words, **PII is any information which can be used to distinguish or trace an individual's identity.**

Rules and other specific considerations governing PII within Iowa Field Offices can be found in the following documents:

- Iowa Instruction 110-380 Private Identification Information (PII), Nov. 24, 2008
- OMB, M-06-15, "Safeguarding Personally Identifiable Information"

You will receive yearly training from NRCS regarding PII.

3.7 INFORMATION TECHNOLOGY SECURITY AND RULES OF BEHAVIOR

In most offices you will be working on computers and networks provided by NRCS partnership. It is important to follow all security expectations and rules of behavior. Prior to being provided with information technology (IT) access, security training will be provided by the NRCS through a series of modules via AgLearn, an internet-based training and educational tool. **All of this training must be completed prior to authorization for computer usage.** For more information on IT security, please refer to Office of the Chief Information Office Information Technology Services “Security Expectations and Rules of Behavior.”

3.8 PERSONAL SAFETY

The Federal Occupational Safety and Health Act was passed by Congress in 1970. Under the act, employers engaged in a business that affects commerce must provide employees with a safe and healthful place to work, free from recognized hazards that are likely to cause death or serious physical harm. Federal, state and local governments are not covered by the general provisions of this act; but federal agencies are subject to special duties, and state and local governments are covered indirectly.

Safety information is available from the Iowa Department of Workforce Development: <http://www.iowaworkforce.org/> .

ACCIDENT REPORTING AND WORKERS’ COMPENSATION - All SCTs must report all work place injuries as soon as possible to the IDALS Personnel Bureau, Wallace Building, Des Moines, Iowa 50319, phone (515) 281-5693 or fax (515) 281-8503. Failure to do so in a timely fashion could invalidate any future claims if the injury persists or any reimbursements if you fail to secure prior approval for any services rendered (i.e. prescriptions, treatments, etc.). Human Resources will assist you in completing the “Worker’s Compensation – First Report of Injury or Illness”. If needed, they will direct you to the nearest Worker’s Compensation doctor. Then, as soon as practicable, notify your IDALS Supervisor and DC.

In case of an emergency, you should get treatment first and then take care of the paperwork as soon as possible. Or, if injury happens before or after normal office hours (8:00 am – 4:30 pm) you should seek treatment first and take care of any necessary paperwork as soon as possible.

3.9 HOURS OF WORK

All USDA Service Centers have defined hours of operation. However, with personnel from several agencies within the same building, there will be different hours of work for some staff. The hours of an individual SCT will be set by IDALS and will depend on the office needs. It may be necessary to perform job duties outside of typical office hours. This is particularly true when conducting outreach activities such as field days or workshops. Remember to talk to your IDALS Supervisor and District Conservationist before working outside your regularly scheduled hours.

3.10 VEHICLES

It is likely you will also be using NRCS vehicles. You will receive information from your DC regarding operating the NRCS vehicle assigned to you. If a truck is assigned to you, you are responsible for all maintenance and any other issues involving your truck. **These vehicles should be used for official use only.** Smoking is not permitted on government property nor in government property. Seat belts are required whenever the vehicle is moving. Be sure to report any damage or maintenance issues that need to be addressed as soon as possible to the NRCS District Conservationist.

Fuel expenses incurred while driving should be charged to the fuel card which is to be kept with the vehicle keys at all times, and receipts should be kept with the mileage sheet. Vehicle mileage should be recorded along with the destination, date of usage, and driver name, before and after each use.

You must have a valid Iowa State driver's license to drive an Iowa NRCS government vehicle. Any tickets you receive, whether in a government vehicle or your personal vehicle, must be reported to the NRCS Human Resources department. All government vehicle operators should obey State Laws at all times- failure to do so may result in a loss of license, loss of permission to drive the NRCS government vehicles, and possible loss of employment.

4. PROJECT ADMINISTRATION & DOCUMENTATION

As a Soil Conservation Technician, you will be responsible for various types of documentation. This documentation is necessary for proper flow of the workload and to trace the stages of the design and construction of the projects for yourself and other staff members. A brief description of some of the more common documents needed is included below. In addition, there will be example documents shown in the appendix in the back of the handbook.

4.1 ENGINEERING SCHEDULE

The engineering schedule is used as a tracking document to show the progress of construction projects. This schedule can be set up to match the needs of each individual county. The document might include producer name, funding source, contract number, practice, approval date, cultural resources and threatened and endangered species check, survey and design date, preconstruction date, contractor's name, and any other pertinent information. Note that to avoid PII problems do not include the location of the practice. If the location is included do not post the schedule on your wall- it must be kept in a locked drawer whenever you are not at your desk. Keeping an engineering schedule allows everyone in your office to know where each project is at while also helping you keep track of where each project is at in contracting, survey, design, and installation. An example of an engineering schedule is in the appendix.

4.2 SETTING PRIORITIES

Setting priorities is essential to being an efficient and effective SCT. During your busy seasons you will have several projects being installed, several needing survey, several needing design, etc. You will work with your local District Conservationist and Soil and Water Conservation District Commissioners to set priorities. The Engineering Schedule will be a helpful tool in establishing priorities. Remember that projects should be prioritized based on approval date (oldest first) and installation date (soonest to latest). This will ensure that no special treatment is perceived by producers or contractors. **You are responsible for your work.**

4.3 CPA-15: CONSERVATION ASSISTANCE NOTES

The CPA-15 form is used to document activity and correspondence with clients. As a SCT, it is important to use the CPA-15 to document any activities which might include: cost share discussions, construction stake out, pre-construction meetings, construction completion, and any other important information. It is important to document these items so that in the future you can go back to see what took place in case you don't remember or so other staff can stay current with projects. The CPA-15 kept in the tract file should include all engineering

information. If you keep a CPA-15 in the engineering file you will still need to keep the tract file CPA-15 updated.

4.4 CPA-52: ENVIRONMENTAL EVALUATION WORKSHEET

The CPA-52 form is used to document the environmental impacts of conservation activities on a specific farm or tract of land. The resources to potentially be affected include: soil, water, air, plants, animals, and humans (SWAPAH). Many NRCS activities could have an impact on cultural resources or threatened and endangered species depending on location. NRCS has specific guidance on how to fill out this form and supporting documentation that may be required. SCTs should learn how to fill out the CPA-52 and be responsible for the CPA-52 on all State Cost Shared practices. Work with your DC/RC/SC to determine who will do the CPA-52 for other programs. Further information on filling out the CPA-52 can be found at <http://www.ia.nrcs.usda.gov/technical/>.

4.5 TRACT FILES

Tract files are kept in the field office to document conservation plans and activities. Tract files include plan maps, soils maps, topography maps, Conservation Plans, CRP contract copies, CPA-52, HEL/Non-HEL determinations, CPA-15, and contacts for that tract. As conservation practices are completed, document it in the CPA-15 and place a new map in the producer's tract file.

4.6 ENGINEERING FILES

The engineering of conservation practices needs to be documented for future reference. Once again, the organization of engineering files will vary from field office to field office. In some cases these files are located with the tract files and in other offices separate file cabinets contain current engineering files. These files will typically contain survey notes, design plans, construction notes, checkout notes, tile maps, certification forms from contractors and any other information pertinent to the project construction. This documentation is needed for any future reference such as if the practice would fail or need to be reconstructed. Other reasons could be for future engineering spot checks or new landowners needing documentation of what was constructed on the property. Discuss this with your DC and other SCTs to determine what works best for you.

4.7 ARCHIVED ENGINEERING FILES

Archived engineering files contain the same information as engineering files except they are older designed projects. Depending on the field office, these archived files may be located in a different location than the more current engineering files to reduce the amount of space needed. Archived engineering files are sometimes placed in the tract files. Some offices place archived engineering projects in separate engineering file cabinets arranged by Tier and Range, then Section number. This can be useful when a producer wants to connect tile to existing tile in another section. Other offices arrange the files by the producer's name. Discuss the arrangement with your DC and other SCTs to determine what works best for you.

4.8 CONTRACTOR MEETINGS

Contractor meetings must be done at least once every 2 years. These meetings are intended for you, the SWCD Commissioners, NRCS, and the contractors working in your county to get together. An agenda should include a welcome by the SWCD, a review of NRCS cost share programs by NRCS, a review of IDALS cost share programs, and a discussion of engineering. This meeting may have an NRCS Area Engineer discuss tiling or some other issue that needs clarification for contractors. Talking to contractors months before the meeting can be beneficial in finding out what they would like to know more about. Contractor meetings should be during a slow work time for them- usually once crops are in or after freeze up. This meeting is an excellent time to have some tiling companies, Iowa One Call, and others with booths and door prizes. Food and door prizes will help get more contractors to your meeting. This meeting is also a good time to review Civil Rights, Threatened & Endangered Species, and Cultural Resources issues. Keeping a copy of your agenda with a sign in sheet and copies of any handouts is a great way to make sure you keep each meeting informative rather than redundant.

4.9 PEG TESTS

Peg tests are performed on survey instruments to check and document the accuracy of the equipment. If needed, the area engineering staff can help with training you how to do this. Peg tests are required to be completed at least once per year but checking prior to each construction season is preferred, or more often if you feel it is necessary. You are required to keep a file and log of when tests are completed and the results of the tests. If you find the instruments to be too far out of adjustment, based on your engineer requirements, you may need to adjust the instrument. Your engineering staff can assist with this also if needed. It is also a good time to clean your equipment to keep in good working condition.

4.10 CONTRACTOR CHECKOUTS & 5% SPOT CHECKS

In many counties it is required for contractors to do their own construction checkout of conservation practices. This practice is beneficial to both the field office staff as well as the contractors. It saves the field staff time during the busy season so they can spend more time getting more jobs ready for landowners and contractors instead of following up behind them. For contractors, it gives them peace of mind knowing that the job was done right when they pull out, rather than having to wait for staff to get there or have to pull back in at a later date to fix something that was done incorrect. Keep a log of what jobs were completed each Federal fiscal year and if you did a spot check on it. 5% of the jobs will need to be spot checked by field office staff for each contractor doing their own check out.

4.11 PERMITS

There are times when a permit may be required for the conservation practice you are designing to be installed. Permit requirements are usually from the Department of Natural Resources or the Corps of Engineers. Permit requirements vary based on practice size and location. It is difficult to list all potential permits required since rules and laws are continually changing within the regulatory agencies. It is important to review with your client the potential for permit requirement and for them to check with the regulatory agency. **It is their responsibility to obtain the permits.**

4.12 IOWA ONE CALL

Iowa One Call operates a statewide notification system to provide effective communications to protect the citizens and underground facilities of Iowa, as stated in their mission statement. **State law requires anyone doing underground excavation to contact Iowa One Call to register at least 48 hours prior to digging.** One Call then notifies utility companies who in turn, will come to the site of excavation to locate any potential underground utility. As technicians we are required to include a reminder statement on all sets of design plans given to contractors and landowners to contact Iowa One Call along with contact phone number. Contacting Iowa One Call is not only the law it is a common sense practice to avoid expensive utility repairs, bodily injury, or even loss of life. **It is the contractor's responsibility to call Iowa One Call, not yours.**

Your office may have old maps locating underground utilities. Due to Homeland Security, we no longer receive these maps nor can give out any information. Some technicians leave a line on

the Contact Iowa One Call for the contractor to put the request number. Other SCTs require the request number before they will go onsite during construction. If you ask for the request number and the contractor refuses to give you one, you may refuse to go onsite until you have one from the contractor. You should notify the producer if this happens. Everyone onsite during construction is in danger if Iowa One Call has not been notified.

4.13 JOB CLASS APPROVAL

As a soil conservation technician, you will be receiving an Iowa Engineering Job Approval Authority from your Area Engineer and District Conservationist. Each type of practice we design is assigned a Job Class based on drainage area, size of structure, or capacity of structure. You can receive approval authority for the stages of practice completion including I&E (Inspection and Evaluation), design, and construction. As you gain experience in designing structures you send a sample of designs to your area engineer to obtain an authority based on your skill level. As your experience increases, so will your job approval authority.

All engineering designs are required to have someone, other than the designer to check the design and someone also needs to approve the design. The same person can design and approve a set of plans or check and approve a set of plans. You are not allowed to approve a design for anything above your approval authority. **The person approving the design must have the proper approval authority** however you can design or check plans that are above your job approval. As a State of Iowa SCT you are limited to a maximum approval authority of class 2 for design approval because the engineering stamp that covers state employees is limited to that amount. This should not limit you in your desire to increase your expertise to a higher level because you can still design at higher levels. You are just limited in design plan approval.

4.14 FUNDING SOURCE REPORTS

Because of state budget constraints at times, the Division of Soil Conservation (DSC) may occasionally receive funding from outside sources such as the NRCS to help get through financial shortfalls. In turn, the DSC agrees to complete conservation work items. As a SCT, you may be required to file quarterly reports to the DSC showing the number of conservation practices completed. You will receive direction from the State Office if and when this will be required.

4.15 ENVIRONMENTAL BENEFIT WORKSHEET

The Environmental Benefit Worksheet is used to document the benefits of the conservation practices we install. This information is used for various reasons but one of the more common uses is to document environmental benefits gained with the use of public dollars through cost share programs. This worksheet documents the type of practice, the amount of the practice installed, the acres benefitted and the soil loss, in tons per acre, before and after the practice installation. This information is required for FARMS. Some SCTs have this information on their preliminary cost estimates for State Cost Shared practices.

4.16 SURVEY NOTE KEEPING

One of the early steps in the design process is surveying the project site. Keeping a good set of survey notes is crucial to an accurate design. Neatness is the number one rule in survey note keeping because not only you, but others may need to interpret your notes at a later time. Erasing is highly discouraged in your survey book. Mistakes should have one line drawn horizontally through it. Chapter 1 of the Engineering Field Manual gives guidance on proper surveying. Your area engineering staff can also provide assistance. When surveying, you will be using various codes in note keeping to save time and space. There is a list of common survey codes attached as an appendix at the end of this manual.

It is highly recommended that you take more notes than what you think you will need. A detailed first survey is better than having to repeatedly survey the same site due to missing information.

5. DESIGN RESOURCES

Learning how to design conservation practices is an ongoing process. It doesn't happen overnight. As a SCT, you will need many resources to learn how to design and layout conservation practices on the land. You will gain much of your knowledge from fellow employees, but you will also need to refer to manuals and other resources as well. A list of some of the more common reference tools are listed below.

5.1 ENGINEERING FIELD HANDBOOK (EFH)

The EFH is a national NRCS manual providing guidance on engineering and conservation practices. It is a “how to” manual for the design of common structural practices we engineer. It includes guidance on everything in the design process from proper surveying to construction plans and drawings. This is a national manual but there are also inserts showing state specific information. There is a hard copy of the EFH in each field office or the website to locate the EFH is: <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21429>

5.2 IOWA FIELD OFFICE TECH GUIDE

Technical guides are the primary scientific references for NRCS. They contain technical information about the conservation of soil, water, air, and related plant and animal resources. The tech guide is separated into five different sections. One of the more common sections you may be using is Section 4-Practice Standards and Specifications. This section includes the practice standards, statements of work, and construction specifications. There is a hard copy of the tech guide in each office, however it is also available online at: http://efotg.sc.egov.usda.gov/efotg_locator.aspx?map=IA . The Technical Guide online is often referred to as the “EFOTG”.

5.3 SOIL SURVEY

The soil survey provides a wealth of information about the soils of your county to assist you in the design of conservation practices. It includes a detailed description of each soil type as well as provides several tables outlining the soil properties and suitability for certain conservation practices. In recent years the soil survey has become available online so anyone could access it with a computer. The website for this is: <http://websoilsurvey.nrcs.usda.gov/app/>. Soil survey books are no longer updated or printed. The Web Soil Survey is updated as the MLRA, or Major

Land Resource Area, work is completed by MLRA teams. If you find discrepancies in your county, it is advised by the NRCS State Soil Scientist to keep a list and let your nearest MLRA team know.

5.4 IOWA DRAINAGE GUIDE

The Iowa Drainage Guide is an ISU publication that provides guidelines for drainage improvements installed on Iowa's agricultural land. It provides information on Iowa Drainage Laws, subsurface drainage, surface drainage, open channels and pump drainage. This could be a useful tool to use along with the EFH and Field Office Tech Guide when designing conservation practices. Each field office should have a copy of the guide or you can obtain a copy from Iowa State Extension Service at a cost.

5.5 THUNDER BOOKS

Thunder books are reference books put together to help in the step by step process of designing a particular structural practice. They will sometimes have sample designs in them to assist you as well. These books are developed by the Area Engineering staff or by the individual field offices. If you do not have a thunder book in your office for a practice you are interested in learning to design, check with your area engineer or neighboring counties. You may also be interested in putting one together yourself as you learn the design process.

5.6 IOWA ENGINEERING INDEX

The Iowa Engineering Index is a web site you will use frequently to find links to different engineering tools such as CADD drawings, engineering forms, and other engineering tools. There are also links to the NRCS standards and specifications and helpful NRCS publications. The Iowa Engineering Index can be found at:

http://www.ia.nrcs.usda.gov/technical/design/iowa_engineering.html

5.7 URBAN STORM WATER MANAGEMENT MANUAL

There may be times when you will be asked for advice on urban storm water issues. The Urban Storm Water Management Manual can prove to be a helpful tool for you to address storm water management problems. The DSC has an Urban Conservationist on staff in Des Moines to also assist with urban storm water issues.

5.8 DNR FORESTRY TECH GUIDE

The Department of Natural Resources (DNR) has a Forestry Practice Manual- Tech Guide which can be used as a reference when working with clients who may need forestry assistance. The tech guide offers specifications and advice on the various practices from tree planting to timber stand improvement to woodland stewardship plans. Often times we will refer clients directly to the DNR Forester for tree planting plans and management plans. We will however be involved with providing cost share incentives to producers for forestry type practices so you should familiarize yourself with these practices and specifications. If you do not have a copy located in your field office, you can find it at:

<http://www.iowadnr.gov/Portals/idnr/uploads/forestry/techguide.pdf>

5.9 ADBNET (305(B) WATER QUALITY ASSESSMENT DATABASE)

ADBNet is an online database tracking Iowa's water quality assessments. These assessments are prepared under guidance provided by the US EPA under Section 305b of the Clean Water Act to:

- estimate the extent to which Iowa's waterbodies meet the goals of the Clean Water Act and attain state water quality standards, and
- share this information with planners, citizens and other partners in basin planning and watershed management activities.

Water quality in Iowa is measured by comparisons of recent monitoring data to the Iowa Water Quality Standards. Results of recent water quality monitoring, special water quality studies, and other assessments of the quality of Iowa's waters are used to determine the degree to which Iowa's rivers, streams, lakes, and wetlands support the beneficial uses for which they are designated in the *Iowa Water Quality Standards* (for example, aquatic life (fishing), swimming, and/or use as a source of a public water supply). Other information from water quality monitoring and studies that are up to five years old are also used to expand the coverage of assessments in the report. Waters assessed as *impaired* (that is, either *partially supporting* or *not supporting* their designated uses) form the basis for the state's list of impaired waters as required by Section 303(d) of the Clean Water Act.

5.10 STREAM CORRIDOR AND SHORELINE ASSESSMENTS

The DNR makes available hand-held Global Positioning System (GIS) units to collect valuable information on the riparian corridor in order to conduct a RASCAL (Rapid Assessment of Stream Conditions Along Length). This assessment is conducted while wading the stream or walking along the banks. With these tools, you can mark the locations of severely eroding streambanks, livestock access, stream channel dynamics, in-stream and riparian zone habitat, potential problem areas and points of interest. Again, once the collection of data is completed, DNR GIS staff will download the data from GPS units and develop a series of detailed maps showing the spatial location and trends of the various data sets. The next step in this process is to meet with local resource staff to interpret the maps and identify critical source areas.

5.11 MOBILE MAPPER, MAGELLAN, & ARCPAD

Information on these tools can be found online at:

<\\iadesmoin2c057\shared\Service Center\NRCS statewide shared\170 CGI Cartography and Geographic Information Systems\MobileMapper and ArcPad Training>

5.12 GARMIN GPS UNIT

The Garmin GPS Unit is useful in delineating wetlands, locating terraces, basins, and grade stabilization structures, and demarking fields. Utilizing the backpack unit will increase the accuracy of the unit. However, it is not a survey tool and cannot be used as such. Further information and manuals can be found at: <http://www.ia.nrcs.usda.gov/technical/gis/gps.html>.

5.13 ARCMAP & TOOLKIT

Two programs that are used to make maps for conservation planning, programs, and engineering are ArcMap and Toolkit. ArcMap was created outside of NRCS by ESRI while Toolkit is an NRCS created program. ArcMap utilizes geospatially referenced data to draw maps. Toolkit allows us to use that data to create conservation plans, engineering plans, etc. Toolkit Customer Folders are stored in the National Planning Database. We pull files from this database on the F:/ into our computer's C:/. From there we are able to add, delete, and modify practices, plans, files, and folders. The Toolkit Customer Folders can be found on the computer you pulled the

file down to under C:/Documents and Settings/*your.name*/My Customer Files Toolkit. Until you upload the file, the file will be listed as “locked” in the National Planning Database. If the file is unlocked while you still have it on your computer you will not be able to upload the file. It is recommended to always upload all Customer Toolkit Files from your computer back into the National Planning Database at the end of each work day. This will ensure that all files are secure and available to other users in your absence. Further information on the use of ArcMap and Toolkit can be found online at: <ftp://ftp-fc.sc.egov.usda.gov/AR/ToolkitWebsite/ToolkitManual/>

6. CONSERVATION PRACTICES

A conservation practice is anything that improves the soil, water, air, plant, animal, and/or human condition on a piece of land. As a SCT, it is your job to take all of these into consideration when inventorying and evaluating (I & E) a site. Every conservation practice has its place, but not every place is right for a conservation practice. Knowledge of which practice in what place will only come with experience, it is not something to expect to learn right away. As you learn each practice and install them you will learn what works and what doesn't.

More detailed information on each practice, including the practice standard and standard drawings, training videos, and general engineering data, are available online at the Iowa NRCS website: http://www.ia.nrcs.usda.gov/technical/design/iowa_engineering.html.

6.1 GRASS WATERWAYS (412)

Grass waterways (Practice Standard Code 412) are areas that are shaped, graded, and seeded down. **Grassed waterways are used in the prevention of gully erosion** to slow the water velocity to acceptable levels that prevent further erosion. Most gullies will form year after year in concentrated flow areas and continue to form even if they are tilled in year after year by farm equipment. Gullies left open may become uncrossable with farm machinery. Grass waterways are frequently the least expensive way to prevent erosion.

Some of the items to look for when evaluating the need for a grass waterway are:

- 1) Drainage area
- 2) Soil types
- 3) Condition of the outlet (head cutting or large overfall)
- 4) Wetness
- 5) Inlet (observation of area above the waterway—if large amounts of sediment are delivered to the waterway from the area above, the functional life of the waterway will be shorten and will need to be repaired sooner than normal.)

There are two types of waterways we work with: parabolic (round bottom or half moon shape) and trapezoidal (flat bottom). As you improve your technical skills and receive training from a civil engineer or from other technicians you will understand what to look for and how to apply and deliver the proper design. You will also learn when and where you will need to install tile for subsurface drainage (Subsurface Drain, Practice Code 606). Grassed waterways have an average 10 year lifespan depending on upland treatment.

6.2 TERRACES (600)

Terraces are a small earth embankment, or ridge and channel, constructed across a slope. **They are used in the prevention and control of sheet and rill erosion- not gully erosion.** They are typically placed on land with long, even slopes. Most terraces follow the contour of the land with only slight deviations for farmability or drainage. There are two types of terraces: gradient and tile outlet. Gradient terraces are gently graded to a grassed waterway to outlet the water while tile outlet terraces (TOTs) grade to inlets and are outletted through tile (Underground Outlet, Practice Code 620). The cost of terraces is dependent on the type of terrace. Four terrace forms are recognized in Iowa: narrow base, grass front, grass back, and broad base. Narrow base is as described- a sharp (2':1') sloped ridge. This form takes a small amount of space out of crop production. Grass front terraces have a steep or sharp grassed front slope and a farmable back slope. Grass back terraces have farmable front slopes and steep grassed back slopes. Broad base terraces are farmable on both sides. The cost of a terrace is based on earthwork – narrow base takes much less soil than broad base – and tile.

The most important part of terracing is spacing. Spacing is decided based on slope, soils and tillage, and equipment width. Review the Conservation Practice Standard for Terrace (Practice Standard Code 600) Table 1 for maximum terrace spacing. With proper spacing, terraces will improve farmability and soil moisture and reduce flash flooding and erosion. Terraces have a 20 year life expectancy depending on upland treatment and maintenance.

6.3 WATER AND SEDIMENT CONTROL BASINS (638)

WASCoBs (water and sediment control basins) are earthen structures placed across an area of concentrated flow of water. They are used in the prevention and control of gully erosion. **Unlike a good terrace system they do not control sheet and rill erosion and are not placed on the contour.** WASCoBs (Practice Standard Code 638) sometimes can be used in the place of grass waterways if placed in a series down a concentrated water flow line. WASCoBs can have a rather large watershed behind them but the greater the drainage area the larger the structure and the more sediment it will collect which will require more maintenance. The basic design for a WASCoB is to store water for no longer than 48 hours so that crop damage is limited. The design of the underground outlet is critical in achieving that goal and is completed by using an intake (stand pipe) and tile that delivers the water to a stable point downstream. Underground Outlet, Practice Code 620, is used to design the tile. WASCoBs have a 20 year life expectancy with proper upland management and maintenance.

6.4 GRADE STABILIZATION STRUCTURES (410)

Grade Stabilization Structures are used to prevent the advancement of large gullies and stabilize the area from further erosion. Soil losses in these areas can be in the hundreds of tons. These structures are typically needed in large watersheds with outlets in ditches or streams.

Grade stabilization structures consist of two types: impoundment and full flow. Impoundment structures will store water to a controlled elevation and then release the water slowly. Full flow structures allow water to pass from one elevation and deliver it to a stable elevation where it will not create any additional erosion without impounding the water for any significant amount of time.

The type of structure used will vary widely. It may depend on height of overfall, site location, material availability (i.e. rock or earth fill), ease of construction, watershed size, and other items. This practice includes rock chutes, aluminum toewalls, basins, concrete drops, grass chutes, etc. Each practice will require separate training. Grade stabilization structures have a 20 year life expectancy with proper upland management and maintenance.

6.5 CONTOURING (332)

Contour farming is a conservation practice in which sloping land is prepared, planted, and cultivated on the contour. **This is an effective practice used to reduce sheet and rill erosion.** On steeper sloped ground this practice is more effective when used in combination with terraces, hay rotations, or residue management.

Contour strip cropping is a low cost conservation system of growing crops in even width strips on the contour to reduce soil erosion. The crops are arranged so that a strip of hay or close growing crop is alternated with a strip of row crop. The strip widths vary depending on equipment size and field slope but are typically 100 to 120 feet wide.

Contour buffer strips are similar to regular contour strips except the buffer strips are usually narrower than row crop strips. The buffers are typically one third to one half the width of the row crop strip but should be at least 30 feet wide to be effective. Contour buffer strips are a way for farmers to maintain higher percentage of row crops while preventing sheet and rill erosion.

6.6 WETLANDS (657, 658, 659)

Wetlands are wet areas. These areas may or may not have surface water. Those that have surface water typically have less than 3' of water. Some wetlands are areas where the soils are saturated with water long enough to create anaerobic (lack of air) soil that grows a

predominance of hydrophytic (water loving) plants. Wetlands may be found in many locations such as long streams and in floodplains, but also on hill sides and extremely flat terrains. Hill side wetlands typically result from water infiltrating through the soil and hitting an impermeable layer, thus traveling laterally until the water seeps out of the side of the hill. Extremely flat terrains may have areas of very small elevation differences, but enough of a difference that water pools in these depressions.

Wetlands provide habitat for waterfowl, shorebirds, fur-bearers, reptiles, amphibians, and other wildlife species. **They are also very effective in improving water quality by trapping sediment and filtering surface and subsurface water.** Wetlands also recharge ground water. Wetlands can be natural depressions or saturated areas requiring no earthwork, or they could be designed for permanent water storage with a constructed dam and spillway. Wetland training is available through NRCS.

6.7 HEAVY USE AREAS (561)

Heavy use areas are places where animals, machinery, or man frequently pass through. This excess traffic causes erosion, greater runoff, water pollution, and even air pollution. Typical sites needed for additional protection may be driveways, stream crossings, watering facilities, or feedlots.

Materials used in treatment of these areas might be concrete, rock, cloth fabric, or even a special seeding of mixed grasses. These materials are the ones most commonly used by NRCS.

6.8 ANIMAL WATERING FACILITIES (614)

Watering Facilities, or tank, or trough depending on where you are in the U.S., is what livestock drink from. There are only a few criteria when planning a watering facility. First, is it the right height for the kind of livestock – think cows versus pigs. Second is capacity and recharge – will there be enough water in there when it is needed. Third is drinking space – is there enough room for everyone to drink before it is time to leave and follow the herd? The fourth and newest is portability – some grazing systems have movable water troughs so the producer doesn't have to buy and maintain as many. Engineers, technicians and grazing specialists can provide training and assist with the design. There is math involved but planning them is relatively simple.

6.9 ANIMAL WASTE STORAGE STRUCTURES (313)

Animal waste storage structures temporally store manure, waste water, or contaminated runoff water. They are typically built from concrete, earth, or metal depending upon the material storage needs. Each type of structure will have different requirements for such things as minimum days of storage, amount of free board, or thickness of concrete. The structures need to be located as close to the waste material site as possible to eliminate any chance for contamination of other areas.

Legal requirements for these structures vary from county to state to federal regulations. NRCS standards may not meet any of the above requirements. **It is the responsibility of the landowner to acquire any and all permits for the site.**

6.10 SHELTERBELT & WINDBREAKS (380)

A shelterbelt or windbreak is a practice in which multiple rows of trees and/or shrubs are planted to provide many conservation benefits. These benefits include: control of snow deposition, prevent wind erosion, protect livestock from winter winds, conserve energy, provide farmstead beautification, and provide habitat for wildlife. It is recommended to plant at least five to eight rows of trees to be most effective but many sites will not allow room for that many rows. The type and variety of vegetation will vary from site to site due to soil type, location of roads, utilities, buildings, and landowner preference. It is very important that each site has a complete and thorough inspection.

NRCS standards and specifications provide guidelines for planning a shelterbelt. Many times the DNR forester may assist with planning of larger shelterbelts.

6.11 URBAN CONSERVATION PRACTICES

Urban Conservation Practices is a more recent undertaking with IDALS, NRCS, and the SWCD. Practices include rain gardens, bioswales, bio-retention cells, permeable pavement, soil quality restoration, wet or dry basins, sand filters, wetlands, grassed swales, etc. Urban areas create many impermeable areas with large runoffs that are often polluted and need treatment before making it into our streams. Many practices are being created each year to mitigate the negative effects of urbanization. Urban conservation practices for State Cost Share must be located in a REAP Priority Watershed approved by the State Technical Committee. Training on these practices is provided by Urban Conservationists employed by IDALS. It is recommended that you request training as potential projects are presented within your county. Additional information on IDALS' urban conservation initiative can be found at: <http://www.iowaagriculture.gov/FieldServices/urbanConservation.asp>. Conservation practice design information can be found in the Urban Stormwater Manual found online at: <http://www.intrans.iastate.edu/pubs/stormwater/index.cfm>.

7. PUBLIC OUTREACH (PO)

The key to having a successful cost share program often lies in the strength of its outreach program. In fact, a public outreach component is usually required in office work plans. If your outreach program is effective, it will take the audience on a cognitive journey, moving them from a condition of unawareness through awareness, knowledge, understanding and finally, the desire to participate. Utilizing the basic marketing strategies listed below will help you conduct a first-rate outreach program.

7.1 OUTLINE PUBLIC OUTREACH GOALS

Your outreach activities should mirror the overall goals of your SWCD, IDALS, and NRCS. If goals include reducing sediment delivery to a stream, concentrate your efforts on promoting the best management practices that do just that. If your goals include putting more wetlands on the ground, review your county information (LiDAR maps, topographic maps, National Wetland Inventory maps, soils maps, etc) and look for areas with the soils and topography to support quality wetlands. A successful outreach campaign will have stakeholders implementing conservation practices long after the cost share incentives are gone.

7.2 IDENTIFY YOUR AUDIENCE(S)

An important step in creating a successful outreach campaign is to identify the target audiences. Multiple mailing lists should be developed to identify primary and secondary targets, e.g., livestock producers, critical area landowners, farm managers, renters and absentee landowners, which will allow you to tailor your outreach methodology to the intended group. For example, if streambank stabilization is an issue, concentrate on contacting only the landowners in the stream corridor. This directed focus will save time and resources, giving you more “bang for the buck.” Mailing lists can be compiled by using a variety of sources: Plat maps, FSA records, NRCS Toolkit, and the county assessor’s office. Selective mailing lists can be acquired by contacting local specialty groups, such as the Beef Producers or Dairy Producers in the area.

7.3 IDENTIFY YOUR CUSTOMERS’ NEEDS AND ATTITUDES

Initial outreach activities should begin during slow times in the office and for producers. Contacting a producer during spring planting or fall harvest will get you little to no beneficial answers. Likewise, do not set aside current projects to work on securing more. Work on outreach as time permits.

The old adage “You can lead a horse to water...” also applies here; just because cost share dollars are available doesn’t mean people will want them. Utilize a variety of methods, such as door-to-door surveys, news articles, and public meetings, to gauge customer attitudes and their willingness to improve their farms. Many times neighbors are the best sellers of conservation and working with the field office. If they had a good experience and got a great product they will let others know. Frequently one project will lead to another within a mile or two just due to exposure.

7.4 SELECT AND INITIATE PUBLIC OUTREACH TECHNIQUES

Your outreach program should include a variety of activities and media venues which will appeal to the contrasting behaviors, attitudes, and personalities of the audience. Traditional media (i.e., newspapers, radio, television, direct mailings, and phone solicitation) may reach the largest audiences, but don’t be afraid to be creative. You can host field days, tours, pasture walks, and workshops; display informational booths at fairs and trade shows. Find out if members of the target audience belong to any special interest groups, e.g., Beef Producers Association, Izaak Walton League, Rotary and local contractor groups. Many of these organizations are on the lookout for guest speakers or articles that can be used in their own newsletters. And don’t overlook youth groups, like 4-H, FFA, or Boy Scouts. These volunteers may be able to earn community service awards by helping you “spread the word” regarding conservation programs and cost share available.

7.5 MEASURE & EVALUATE EFFECTIVENESS OF OUTREACH CAMPAIGN

Keep detailed records of your outreach efforts so that you can determine what methods work, and which ones don’t. These records should include a copy of the distributed material, e.g., letters, radio scripts, brochures, articles, etc, and how many people were exposed to the material (i.e. 35 people attended the pasture walk.) Keep in mind that the success of an outreach activity is not necessarily a head count of people reached, but how many water quality practices were initiated as a result of the outreach effort., such as “five producers initiated rotational grazing as a result of attending the pasture walk.” Sometimes the result may not be seen for a few years due to weather conditions and economics so don’t give up when things seem to not be going as planned. All outreach materials must contain the Equal Employment Opportunities statement.

8. COST SHARE FUNDING SOURCES

Many sources of conservation practice funding are available in the field office. Below is a list of who and what programs are currently available. Learn the programs and their practices as soon as possible to be able to assist producers in choosing what program to sign up for.

8.1 DIVISION OF SOIL CONSERVATION

Officially part of the Iowa Department of Agriculture & Land Stewardship, the Division of Soil Conservation (or as its frequently referred to DSC) has funded watershed efforts for over 20 years. Below is a list and brief description of the two primary funding sources DSC uses to support watershed-based projects in Iowa.

WATER PROTECTION FUND (WPF): Water quality protection projects protect the state's surface and groundwater resources from point and non-point sources of contamination. Authorized in Iowa Code Chapter 161C, WPF projects are developed through a locally led process initiated by Soil and Water Conservation Districts, coordinating the resources and programs of a variety of organizations to achieve local objectives. Applications consider the importance of the resource to be protected, the nature and extent of the water quality problem, proposed solutions, landowner interest, and the overall cost effectiveness of the project.

WATERSHED PROTECTION FUND (WSPF): WSPF was established in 1999 by the Iowa legislature to accelerate watershed protection efforts across the state. The authorization for these funds is broader than WPF or EPA Section 319 funding, enabling DSC to invest these funds to protect soil & water quality, other natural resources and provide flood reduction. Primary goals include building the capacity of local communities to sponsor watershed protection efforts, and providing resources to leverage other funding available at the federal and local level.

Regardless as to program, it is DSC's belief that water quality protection projects commonly use the watershed approach to address water quality problems. It provides the most comprehensive, efficient and effective way to achieve soil and water quality protection objectives. Successful projects usually have a high level of community support and include strong public information and education programs. They also feature partnerships with federal, state and local agencies and organizations.

In addition to WPF/WSPF, DSC also administers various other cost share programs, as well as no-interest and low-interest loan programs, which under certain circumstances, can bring even more resources to support conservation in your county. However, it should be pointed out that care must be given to leveraging certain funds with other sources. While there may be exceptions, the general rule of thumb is you can't match state funds with other state funds or federal funds with other federal funds. But you can often match certain state AND federal funds together. Your DC will know which funds can be used together.

Additional information about all DSC administered grant, cost share and loan programs, including WSPF and WPF can be found at the following Division of Soil Conservation website: <http://www.iowaagriculture.gov/soilConservation.asp>.

8.2 IOWA DEPARTMENT OF NATURAL RESOURCES

Compared to the administrative structure of DSC, the DNR has several more programs and funding streams that can be used to support water quality in the State of Iowa. Besides the Nonpoint Source Program, past projects have successfully leveraged both funding and technical support from others within the DNR, namely Fisheries, Wildlife, Monitoring, Lakes Restoration, Parks & Recreation, Environmental Protection, and the Geological Survey.

EPA SECTION 319 PROGRAM: The primary funding source for the Nonpoint Source Management Program is a yearly grant from the Environmental Protection Agency (EPA), as provided by the 1972 Clean Water Act. Used to support both Watershed Planning Grants and Watershed Implementation Grants programs, the funds are also used to support staff and activities connected to watershed improvement activities, impaired waters lists (303(d)) and watershed improvement plans. Section 319 money is given out through a grant application process under the following guidelines:

- These funds are primarily targeted to only those watersheds that appear on, or drain directly or indirectly into a water body included on Iowa's 303(d) List of Impaired Waters.
- SWCDs are eligible to apply for these funds as well as local watershed groups and councils, county conservation boards, universities, city and county governments, along with non-profit organizations and others.
- In order to be considered for a Watershed Implementation Grant, a Watershed Management Plan (WMP) must be developed and approved by both EPA and DSC. Funds provided through an implementation grant can be used to support the implementation conservation practices as well as approved administrative costs.

Additional information on DNR's Watershed Planning and Implementation Grants can be found in Sections 4.1 and 4.2.

LAKE RESTORATION PROGRAM: Numerous DSC/DNR watershed projects have successfully leveraged funds from DNR's Lakes Restoration Program. What makes this annually-funded program unique is their funds are one of the few that can be used for *both in-lake measures as well as watershed-related practices*. To be eligible, a lake in your county must appear on the list of Iowa's Significant Publicly-Owned Lakes. Additional information this program can be found at: <http://www.iowadnr.gov/water/lakerestoration/index.html>.

8.3 WATERSHED IMPROVEMENT REVIEW BOARD

The Watershed Improvement Review Board (WIRB) is a possible funding source available for watershed/water quality implementation projects. The Board is made up a diverse group of individuals appointed by the governor along with two state senators and two state representatives. The group receives a yearly appropriation and makes grant awards to projects based on applications developed to improve water quality and/or assist with flood prevention. The application process and guidance is similar to that described for the other funding sources. Project applicants for WIRB grants may include local watershed improvement committees, soil and water conservation districts, counties, county conservation boards, public water supply utilities and cities. While the Board is an independent group, DSC does serve as an administrative support agency and additional information about WIRB and their application process is available to you on the IDALS website.

8.4 MISSISSIPPI RIVER BASIN INITIATIVE

The Mississippi River Basin Initiative (MRBI) was established by the Natural Resources Conservation Service (NRCS) to improve water quality and wildlife habitat within the 12-State Initiative area to address nutrient loading in the Mississippi River Basin and the hypoxic zone in the Gulf of Mexico. Through this new Initiative, NRCS and its partners will help producers in selected watersheds to voluntarily optimize their use of nitrogen and phosphorus through conservation practices that avoid, control, and trap nutrient runoff; improve wildlife habitat; and maintain agricultural productivity.

8.5 UNITED STATES DEPARTMENT OF AGRICULTURE

Programs offered by the USDA-NRCS include the programs below. It is important to note that funding levels and availability of the following programs can change each year.

CONSERVATION RESERVE ENHANCEMENT PROGRAM (CREP)

- **Purpose:** Work with landowners to develop and install wetlands which are strategically located and designed to remove nitrate from tile-drainage water from cropland areas.
- **Eligibility:** Enrollment on a continuous basis to landowners within the 37-county prairie pothole region of north central Iowa; eligible sites must be in landscape position to intercept significant tile flow while not obstructing normal drainage.
- **Contract:** Landowners will enter a 15-year contract with USDA-FSA as under the Continuous CRP. DSC funds are used for additional, one-time, up-front incentive payment to encourage participating landowners to enter into a required additional 15-

year agreement or permanent easement; FSA and DSC funds will provide for 100% cost-share.

CONSERVATION RESERVE PROGRAM (CRP)

- *Purpose:* To reduce erosion, increase wildlife habitat, and improve water quality through conservation practices such as tree planting, grass cover, small wetland restoration, prairie restoration, and others.
- *Eligibility:* Varies by soil type and crop history. For general signups, land is accepted into the program if the offer qualifies. Continuous signup is open for buffers, waterways, and environmental practices at all times.
- *Contract:* 10-15 years depending on the type of practice. Transferable with change in ownership.

CONSERVATION SECURITY PROGRAM (CSP)

- *Purpose:* To reward farmers and landowners for past conservation work and provide technical and financial assistance to help implement- conservation plans that address specific natural resource concerns and complete more conservation work.
- *Eligibility:* Private agriculture land and non-industrial forest land planted, except for land in WRP, CRP and GRP. Signup is continuous.
- *Contract:* 5-year contracts; annual payment is based on contract details.

ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP)

- *Purpose:* To provide technical and financial assistance to landowners to develop and implement conservation plans that address specific natural resource concerns through practices such as: livestock manure management, grazing land management, soil erosion control, and water quality improvement practices.
- *Eligibility:* Agricultural producers on agricultural land are eligible. Projects are selected based on environmental benefits.
- *Contract:* Up to 10 year contracts.

WETLANDS RESERVE PROGRAM (WRP)

- *Purpose:* To develop and implement a conservation plan for restoration of wetlands previously altered for agricultural use.
- *Eligibility:* Land that has been owned for seven years and can be restored to wetland conditions.
- *Contract:* Landowners may restore wetlands with permanent easements, 30-year easements or 10-year contracts. Permanent easements pay 100% of the easement value of the land and 100% cost-share for restoration; 30-year easements pay 75% of the agricultural value and 75% cost-share for restoration; 10-year contracts pay 75% cost-share of restoration only. Permanent or 30-year easements are recorded with property easement deeds.

WILDLIFE HABITAT INCENTIVE PROGRAM (WHIP)

- *Purpose:* To develop or improve fish and wildlife habitat on privately owned land through the application of a conservation plans based upon the implementation of grass seeding, tree and shrub plantings, fencing, in-stream structures, and prairie restoration.
- *Eligibility:* Private agricultural land, non-industrial private forestland or Indian land.
- *Contract:* Usually 5 years to install and maintain the habitat. Financial assistance may be available for restoration costs, to a maximum of \$30,000. Other organizations may provide additional financial assistance.

9. TECHNICAL REFERENCES, LAWS & REGULATIONS

There are many State laws and regulations regarding soil erosion and conservation practices. Many technical references are also available to guide you through the laws. Learning the laws in general will help you in assisting producers. Detailed knowledge of the laws is not required as an SCT, however, there are procedures that need to be followed in different instances. Below are the most common you will see in the field office.

9.1 SOIL LOSS COMPLAINTS

Iowa Drainage Law grants the right to the owner of land higher in elevation to drain water across a lower neighbor in a natural waterway without interference. However, the lower neighbor has legal rights if his/her property is receiving damage from sediment. Code of Iowa Chapter 161A.44-.51 (Iowa Sediment Control Law) provides the avenue for the damaged party to initiate legal action. Through the steps detailed in the Code of Iowa, the culpable party may be found at fault by the local Soil & Water Conservation District board and an Administrative Order issued in order for soil erosion control to be implemented on the owner of the higher property. This process may be facilitated by the SWCD and IDALS-DSC with legal assistance from the Iowa Attorney General. The current Code of Iowa may be found at <http://www.legis.state.ia.us/IowaLaw.html>. The pamphlet "Guidelines for filing Soil Loss Complaints under Code of Iowa Chapter 161A.44-.51" has been approved for distribution by the Iowa Attorney General and is found in the appendices of this document. The IDALS-DSC website has a link to its Policy & Procedure Manual which directs you to www.iowaagdata.com. The Soil Loss Regulations section contains a complete description of the entire process, as well as a soil loss procedure flow chart, a check list, and several samples of the documents involved. For further assistance, contact IDALS-DSC or the Iowa Attorney General.

9.2 NRCS COMPLIANCE STATUS REVIEWS

USDA agencies are responsible for ensuring producers comply with Highly Erodible Land Conservation and Wetland Conservation provisions of the Food Security Act of 1985, as amended, in order to be eligible for any USDA benefits and programs. These include, but are not limited to storage payments, loan programs, emergency assistance, CRP, CSP, EQIP, and the Direct and Counter-Cyclical Program.

Since the 1985 Farm Bill, each farm tract containing highly erodible land (HEL) is required to have a compliance plan developed by NRCS for each HEL field. According to current regulations, this plan includes a combination of residue requirements and management components to meet soil loss limits for each field and also includes controlling all ephemeral

gully erosion. Required residue levels must be intact after planting, so all methods of fertilizer and manure application must be taken into consideration by a producer, not just tillage.

In addition, Farm Bills and Section 404 of the Clean Water Act also require landowners and producers to protect wetlands on land they own or operate. Referring to their Certified Wetland Determination completed by NRCS, crop production may not be made possible in a wetland, nor may drainage of Farmed Wetlands be increased nor may fill be added to any wetland.

Each NRCS field office conducts annual status reviews on tracts randomly determined by National Headquarters. The number of tracts chosen for review may vary from year to year, as determined to accurately assess compliance at the national level. Supplemental tracts may be added by the State Conservationist and at the local level, such as whistleblower complaints.

Additional information may be found in Title 180-Conservation Planning and Application, National Food Security Act Manual, Part 518-Compliance Review.

9.3 1972 CLEAN WATER ACT

The objective of the Federal Water Pollution Control Act, commonly referred to as the 1972 Clean Water Act (CWA), is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. However, based upon whether the source of pollution is defined as point versus nonpoint has a significant impact on the measures the federal government can take to resolve the problem. States may be authorized to implement CWA programs, but the EPA retains oversight responsibilities.

POINT SOURCE POLLUTION - Point source pollution is “any single identifiable source of pollution from which pollutants are discharged, such as a pipe, ditch, ship or factory smokestack”. Factories and sewage treatment plants are two common types of point sources. The CWA gives the EPA the authority to establish effluent limits, thus providing the basic structure for regulating the discharge of pollutants from point sources to waters of the United States. The CWA also requires the acquisition of a National Pollution Discharge Elimination System (NPDES) permit prior to the discharge of pollutants.

NONPOINT SOURCE POLLUTION - Nonpoint source (NPS) pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources. NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water. Because of its diffuse nature, nonpoint source pollution is often difficult to define. Therefore, in many cases (and at this time) participation to reduce nonpoint source pollution is voluntary.

9.4 IOWA DNR ENVIRONMENTAL SERVICES DIVISION FIELD OFFICES

The Iowa DNR, through their Field Services and Compliance Bureau, are local representatives of the Environmental Services Division. A partial list of the programs they cover include air quality, animal feeding operations, contaminated sites, underground storage tanks, waste management, water supply, and water quality.

Among their day-to-day tasks includes helping people to understand environmental services programs, enforcing state environmental laws, including inspections of permitted facilities, helping individuals and businesses understand when to apply for a permit and how to meet permit requirements, respond to spills, handle complaints from the public and often resolving disputes between neighbors. If technical assistance and cooperative activities do not resolve a problem, the DNR field office staff may recommend more formal measures to seek compliance. In any compliance actions, field office, central office and legal staff form a team to coordinate each case until it is finally resolved. Additional information about the Department of Natural Resources can be found at: <http://www.iowadnr.gov>. Besides providing technical assistance, DNR Field Office staff have frequently provided training to SCTs and participated in numerous public outreach efforts conducted by various projects.

9.5 TORT LIABILITY

Soil Conservation Technicians, as agents of the State of Iowa, are covered under the State's tort liability law as long as they are carrying out their official duties with due care and in good faith. Tort claims are civil claims that are brought on allegations of wrongful death or injury to a person or damage to property. Law suits are typically based on negligence, breach of duty or nuisance. Providing employees are acting within the limits of their duties, the State Attorney General's office will defend them against suits. Contact IDALS-DSC whenever you maybe unsure about possibility of liability and the IDALS-DSC will initiate contact with the Attorney General's office.

9.6 ARMY CORPS OF ENGINEERS PERMITS

This division of the U.S. government has many departments but the one that NRCS works with in most cases deal with waters of the U.S. Examples of when we would consult with them would be: working with navigable water of the U.S., stream bank work, flood plain work and straightening out streams. They are very helpful in explaining rules and regulations for any type of construction, alteration or flood damage that has or will take place. It is totally the responsibility of the landowner and/or the contractor to inform and receive the proper permits from the Army Corp.

APPENDIX 1. ENGINEERING SCHEDULE EXAMPLE

Muscatine FO Engineering Schedule

Revised 11/29/2011

No	Last	First	Fund	Contract	Approved	Practice Codes	CR T&E	Survey/ Design	Date Designed	PreCon Mtg	Contractor	Status/Remarks
1	Jinhua	Jim	REAPP	51864	Apr-09	412	A-09	D	6/5/09	9/15/11	Jefferson	completed; bills
2	Black	Anatolian	IFIP	12977	Apr-09	412/410	A-09	D	6/5/09	9/15/11	Washington	completed; bills
3	Charolais	Sharlene	EQUIP	15281	Aug-09	412	M-09	D	3/11/10	11/16/11	Adams	installing
4	Arabian	Arnie	CRP	9156D	Jan-10	600/620	A-09		5/5/10	6/5/10	Obama	installing
5	Angus	Angie	CRP	1465	Apr-10	412/606	M-10	D	3/23/10	5/4/10	Washington	winter install
6	Percheron	Perry	REAPP	15762	Apr-10	412	A-10	D	5/5/10	4/28/11	Jefferson	Completed
7	Alpine	Ally	IFIP	24935	Feb-11	638/620	J-11	D	5/5/11	9/15/11	Carter	installed
8	Baluchi	Ballu	IFIP	26484	Feb-11	638/620	S-10	D	8/1/11	8/6/11	Bush	winter install
9	White	Chester	EQUIP	128W1	Mar-11	412/606	J-11	D	9/27/11	10/20/11	Obama	Installing
10	Belgian	Benny	F&NG	1573X	Mar-11	638/620	J-11	D	10/27/11	11/1/11	Washington	installing
11	Hampshire	Hammy	EQUIP	4976C	Mar-11	382		-	-	-	Washington	fencing
12	Dorset	Dorry	EQUIP	1546	Mar-11	412/606	J-11	S	5/1/11	6/1/11	Adams	Cancelling
13	Thoroughbred	Thor	IFIP	24863	Apr-11	638/620	M-11	D	5/10/11	5/18/11	Adams	installed
14	Boer	Barney	EQUIP	1356Q	Apr-11	378	M-11	D	9/6/11	9/15/11	Clinton	installing
15	Bengali	Ben	CRP	1547	May-11	412	A-11	D	6/20/11	6/20/11	Adams	installing
16	Landrace	Dutch	IFIP	12479	May-11	410	A-11	D	8/1/11	8/10/11	Carter	installed
17	Paint	Peter	Bonding	26794	May-11	412	A-11	D	8/1/11	8/10/11	Carver	installed
18	Lati	Lati	REAPP	34692	Aug-11	412	A-11	D	10/3/11	10/6/11	Cleveland	installed
19	Mulefoot	Muriel	IFIP	4967	Aug-11	600/620	S-10	D	10/13/11	10/20/11	Jefferson	installed
20	Oberhasli	Obie	CRP	1258	Aug-11	412	CR	S			Adams	winter install
21	Romagnola	Mora	CRP	2648	Sep-11	657		S			Washington	summer install
22	Gelbvieh	Gary	EQUIP	12467F	Sep-11	638/620		S			Jefferson	spring install
23	Bantu	Bart	EQUIP	1275E	Oct-11	412	N-11				Jefferson	spring install
24	Hu	Hugo	EQUIP	4278W	Oct-11	412					Obama	spring install

APPENDIX 2. NRCS SURVEY CODES

Field Code	Description	Field Code	Description
60D	60D Nail TBM	IP	Instrument Point
AS	Auxiliary Spillway	LB	Left Bank Main
BK	Bank Main	LB1	Left Bank Lateral 1
BK1	Bank Lateral 1	LB2	Left Bank Lateral 2
BK2	Bank Lateral 2	LOT	Livestock Lot
BLD	Building	M	Miscellaneous
BM	Bench Mark	OB	Overfall Bottom
BORE	Soil Bore Hole	OT	Overfall Top
BORR	Borrow Limit	PB	Power Box
BT	Bank Toe	PIN	Survey Pin
BU	Buried Utilities	PL	Property Line
BW	Bottom of Wall	PP	Power Pole
CE	Concrete Edge	PVC	Poly Vinyl Chloride pipe
CL	Centerline	RB	Right Bank Main
CLR	Clearing Limit	RB1	Right Bank Lateral 1
CMP	Corrugated Metal Pipe	RB2	Right Bank Lateral 2
CP	Control Point	RCP	Reinforced Concrete Pipe
CTREE/TC	Conifer Tree	SEED	Seeding Limit
CV	Culvert	SMP	Smooth Metal Pipe
DA	Drainage Area	SPIKE	Spike
DIV	Diversion	SR	Structure Ridge
DTREE/TD	Deciduous Tree	ST	Structure Toe
ED	Edge Ditch	TB	Telephone Box
ER	Edge Road	TBM	Temporary Bench Mark
ES	Auxiliary Spillway	TER	Terrace Ridge
EW	Edge Water	TI	Tile Inlet
FC	Fence	TO	Tile Outlet
FCCOR	Fence corner	TOE	Toe
FCR	Fence corner	TOP	Top
FCTEE	Fence Tee	TP	Turn Point
FL	Flowline Main	TR	Terrace Ridge
FL1	Flowline Lateral 1	TT	Terrace Toe
FL2	Flowline Lateral 2	TW	Top of Wall
FLJCT	Flowline junction	WALL	Wall
FLOOR	Floor	WELL	Well
FTG	Footing	WL	Waterline
G	Ground	WW	Waterway
GB	Grain Bin	X	Fence
HUB	Hub	XC	Fence corner